

## The Industrial Revolution Guided Notes

What do we need to industrialize?

- \_\_\_\_\_.
- England and Germany have access to both of these resources.

Rubber

- When James Watt invents the \_\_\_\_\_, he needed another resource to make it run efficiently.
- Rubber is used to make \_\_\_\_\_ for the machinery.
- Rubber comes from \_\_\_\_\_.

Great Britain is the first to Industrialize

- Britain: Increased production leads to more
  - \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_
- Jethro Tull
  - Invents the seed drill and horse drawn \_\_\_\_\_
    - Increases farming production
- Britain also has harbors, canals, and access to the Columbian exchange
  - \_\_\_\_\_ increases agricultural production

The Enclosure Acts

- The Enclosure Acts
  - Abolition \_\_\_\_\_ farming system
    - Used for hundreds of years
  - Allows for \_\_\_\_\_ to be sold to private investors
  - New \_\_\_\_\_ will be built to get to the new privatized land.

Ingredients for Industry

- Enriched Property owners
  - \_\_\_\_\_ crops
  - Crop rotation
  - Selective \_\_\_\_\_
  - Mechanization of planting

- Consequence:
  - \_\_\_\_\_
    - Needed to Industrialize
  - Tenant farmers were no longer needed due to new technologies.
  - Tenants became cheap reliable work force in factories.
  - People move to \_\_\_\_\_ to get jobs.

#### Textile Production

- Traditionally women would get together in one \_\_\_\_\_ home and make cloth to make clothing for their families.
- This \_\_\_\_\_ was used for hundreds of years.

#### Spinning Jenny

- Patented by \_\_\_\_\_ Hargreaves in 1770
- Process \_\_\_\_\_ much faster

#### Waterpower

- Sir Richard \_\_\_\_\_
  - \_\_\_\_\_ loom factories
  - Invented the Water Frame mill
    - Water \_\_\_\_\_ factory

#### Textile Production Innovations

- Edmund Cartwright:
  - \_\_\_\_\_: produce cloth and clothing much faster
- The Factory System:
  - \_\_\_\_\_: industrial output vastly increased
  - \_\_\_\_\_: allows for machines to be fixed faster and cheaper
  - \_\_\_\_\_: automatic devices increases industrial output
- Consequences:
  - replaced the domestic system

#### Steam Engine

- Thomas Savery
  - Credited with the invention of the \_\_\_\_\_
  - Took ideas from \_\_\_\_\_, the cylinder and piston system.

- Steam Engine pumped \_\_\_\_\_ from the ground

#### Pottery

- Josiah Wedgwood innovated \_\_\_\_\_ production by introducing division of labor.
  - Each worker had a small \_\_\_\_\_
  - Increased \_\_\_\_\_
  - Decreased \_\_\_\_\_
  - Became the model for mass production in Britain

#### United States Industrialization

- Eli Whitney: \_\_\_\_\_
  - Increases cotton production
  - Increases demand for slaves

#### Communication

- Alexander Graham Bell
  - \_\_\_\_\_
  - Uses \_\_\_\_\_ to communicate over long distances

#### Great Britain Industrialization.

- Henry Bessemer: improved \_\_\_\_\_.
  - More oxygen makes the iron hotter and allows it to be “cast”.
  - Mass production for railroads
  - Cheaper to produce more steel

#### Transportation

- George Stephenson builds the \_\_\_\_\_.
  - Steam \_\_\_\_\_ on a wagon, out along a set of tracks
  - Train
  - Railroad
  - Some \_\_\_\_\_ and \_\_\_\_\_ argue that going 25 mph or more would cause the human organs to shut down leading to death

### Transportation Continued

- What is the purpose of railroads?
  - \_\_\_\_\_: People can live further away from city centers
  - \_\_\_\_\_: Stimulates the market by opening up new areas to buy and sell goods
  - \_\_\_\_\_: encourages villages and towns to develop in rural areas
  - \_\_\_\_\_: politically ties regions and nations together.

### Transportation Continued

- United States and Great Britain build \_\_\_\_\_ and \_\_\_\_\_.
- Canals: allows \_\_\_\_\_ of heavy goods to cities. Faster, and cheaper than by horse drawn carts.
- Steamboats: \_\_\_\_\_ form of transportation up and down rivers

### Germany Industrialization

- Started as an \_\_\_\_\_ and \_\_\_\_\_ country.
- Germans sent their children to study industrialization in Britain and brought back those ideas to Germany.
- Germans import British \_\_\_\_\_
- Germans hire British industrial \_\_\_\_\_
- By the 1850's, Germany had:
  - Textile Factories
  - Iron works
  - Railroads
  - Coal mines

### German Industrialization continued

- Germany was a fragmented country.
- Last half of 19<sup>th</sup> century experienced rapid industrial expansion
- After German \_\_\_\_\_ 1871, industrialization sped up.

### Chemical production

- \_\_\_\_\_ and \_\_\_\_\_
  - Production of industrial chemicals increased

### German Industrialization Continued

- Electrical and Motor construction
  - \_\_\_\_\_
  - \_\_\_\_\_
- At the end of the 19<sup>th</sup> century, \_\_\_\_\_ is the biggest industrial producer in \_\_\_\_\_.

### Impacts of Industrialization

- European and American imperialism spreads quickly to Africa and Asia.
- Imperialized:
  - Almost all of \_\_\_\_\_
  - Southeast \_\_\_\_\_
  - Coastal regions of \_\_\_\_\_

### Japan Opens Up

- Under \_\_\_\_\_, Japan was closed off.
- Admiral Matthew \_\_\_\_\_ forces Japan to enter into economic and diplomatic negotiations with the United States
- This allows the United States compete better against \_\_\_\_\_ forces

### Meiji

- Before opening up, Japan had some legal trade, but a lot more \_\_\_\_\_.
- Shogun accepted the \_\_\_\_\_ which opened Japan to U.S. business interests
  - In 1853, Japan had to open its docks to the United States Navy
- In 1864, \_\_\_\_\_ navies attack Japanese cities (Southwestern coast).
  - Demanded Japan to open up trade to them too.

### Meiji Restoration

- Under \_\_\_\_\_, Japan opens its markets and modernizes
- Japan sees the failures of \_\_\_\_\_ and the treaty to repel European forces and American forces
- \_\_\_\_\_ is seen as weak.
- Inspires a rebellion and the Meiji form a new government
  - Claim that the new government is to restore power to the Emperor
  - In reality, Emperor was a figurehead ruled by a small group of \_\_\_\_\_ (small group of rich business leaders with political power).
- Meiji fear \_\_\_\_\_ influence may take over Japan
  - Launches initiative to modernize Japan

### Japan Modernizing

- Japan needs industry for \_\_\_\_\_
- Well trained military for national identity
- Adopts western \_\_\_\_\_
- Sends hundreds of students to study in Britain, America, and Germany.
- Wants to be a modern power just like the other western countries.
- Moves capital from Kyoto to Edo (modern day \_\_\_\_\_)

### Japan Modernizing

- Japan hired experts of all types to come to Japan to teach Japanese \_\_\_\_\_, military \_\_\_\_\_, educators, and students.
- New form of \_\_\_\_\_ focuses on:
  - Vocational Jobs
  - Technical Jobs
  - Agricultural Classes
  - Research Universities
- Japan hires German experts to help them form a modern \_\_\_\_\_, fashioned after Britain.
- Adopts modern imperial government bureaucracy from Germany.
- Adopts slogan: “Enright the country, strengthen the army” –Fukoku Kyohei

### Japan Modernizes

- Modernized infrastructure
  - \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_
- Japanese government set up factories.
  - Produce textiles.
  - Once profitable, the state would sell factories to groups of investors called \_\_\_\_\_.
  - Profits from selling factories helped to pay for reforms.
- Mitsubishi founder: Yataro Iwasaki